[SEQUENCE LISTING]

<110> SUNTORY LIMITED

SUNTORY BIOMEDICAL RESEARCH LIMITED

<120> THERAPEUTIC METHODS AND AGENTS FOR DISEASES ASSOCIATED WITH DECREASED EXPRESSION OF AOP-1 GENE OR AOP-1

<130> YCT-687

<160> 30

<210> 1

<211> 1542

<212> mRNA

<213> Homo sapiens

<400> 1

ctgaagatgg cggctgctgt aggacggttg ctccgagcgt cggttgcccg acatgtgagt 60

gccattcctt ggggcatttc tgccactgca gccctcaggc ctgctgcatg tggaagaacg 120

agcttgacaa atttattgtg ttctggttcc agtcaagcaa aattattcag caccagttcc 180

tcatgccatg cacctgctgt cacccagcat gcaccctatt ttaagggtac agccgttgtc 240

aatggagagt tcaaagacct aagccttgat gactttaagg ggaaatattt ggtgctttc 300

ttctatcctt tggatttcac ctttgtgtgt cctacagaaa ttgttgcttt tagtgacaaa 360

gctaacgaat ttcacgatgt gaactgtgaa gttgtcgcag tctcagtgga ttcccacttt 420

agccatcttg cctggataaa tacaccaaga aagaatggtg gtttgggcca catgaacatc 480

gcactcttgt cagacttaac taagcagatt tcccgagact acggtgtgct gttagaaggt 540

tctggtcttg cactaagagg tctcttcata attgacccca atggagtcat caagcatttg 600

agcgtcaacg atctcccagt gggccgaagc gtggaagaaa ccctccgctt ggtgaaggcg 660

ttccagtatg tagaaacaca tggagaagtc tgcccagcga actggacacc ggattctcct 720

acgatcaagc caagtccagc tgcttccaaa gagtactttc agaaggtaaa tcagtagatc 780

acccatgtgt atctgcacct tctcaactga gagaagaacc acagttgaaa cctgctttta 840

tcattttcaa gatggttatt tgtagaaggc aaggaaccaa ttatgcttgt attcataagt 900

attactctaa atgttttgtt tttgtaattc tggctaggac cttttaaaca tggttagttg 960

ctagtacagg aatcgtttat tggtaacatc ttggtggctg gctagctagt ttctacagaa 1020
cataatttgc ctctatagaa ggctattctt agatcatgtc tcaatggaaa cactcttctt 1080
tcttagcctt acttgaatct tgcctataat aaagtagagc aacacacatt gaaagcttct 1140
gatcaacggt cctgaaattt tcatcttgaa tgtctttgta ttaaactgaa ttttctttta 1200
agctaacaaa gatcataatt ttcaatgatt agccgtgtaa ctcctgcaat gaatgtttat 1260
gtgattgaag caaatgtgaa tcgtattatt ttaaaaagtg gcagagtgac ttaactgatc 1320
atgcatgatc cctcatccct gaaattgagt ttatgtagtc attttactta ttttattcat 1380
tagctaactt tgtctatgta tatttctaga tattgattag tgtaatcgat tataaaggat 1440
atttatcaaa tccagggatt gcattttgaa attataatta ttttctttgc tgaagtattc 1500
attgtaaaac atacaaataa catatttaaa caaaaaaaaa aa 1542

<210> 2
<211> 1433
<212> mRNA
<213> Rattus norvegicus
<400> 2
gctatcgtgg ctcttgcgtt ctctgaagat ggcggcagct gcgggaaggt tgctctggtc 60
ctcggtggct cggcctgcga gcactatttt ccggagtatt tctgcctcaa cagttcttag 120
gcctgttgct tctagaagaa cctgcttgac agacatgctg tggtctgcct gtccccaagc 180
aaagtttgcc tttagcacca gttcttcatt ccacacccct gctgtcaccc agcatgcgcc 240
ccattttaaa ggtactgctg ttgtcaatgg agagttcaaa gagctgagtc tcgacgactt 300
taaggggaaa tacttggtgc ttttcttcta ccctttggat ttcacatttg tgtgtcctac 360
agaaattgtt gctttcagtg acaaagccaa tgagtttcat gacgtaaact gtgaagtagt 420
tgcggtttct gtggattccc acttcagtca tcttgcctgg atcaacacgc caagaaagaa 480
tggtggtttg ggccacatga acatcacgct gttgtcggac ttaactaagc agatatcccg 540
agactacgga gtactgttgg aaagtgctgg cattgcgctc agaggtctct tcattattga 600
ccctaatggt gtcatcaagc acctgagtgt caatgacctt ccggtgggcc gaagtgtgga 660
agaaccactc cgtttggtaa aggcgttcca gtttgtggag acccatggag aagtctgccc 720
acccaactgg acaccagagt cccctacgat caagccaagt ccaacagctt caaaagagta 780

ctttgagaag gtccatcaat aataggtcat cctatgtctg ctggtttacc tgaagcttct 840
catgccaaaa gagagcccca gctggaatcc tgaagattat ttatagaatg gcaaaaacct 900
caccatgctt gtgtttataa gtactgctcc atgggctttg taattttaag acaggttcag 960
gttaaaggtg gccagctcct tccatagctg tccttactag ggacttcttg atggctacca 1020
attctctaca agtgcttggt ccccatttct tagatcatgt cttcagaggg ttaagatttc 1080
ttagcctgcc ctgaagcttg gtctacagtg aagtagcaca tagcaccagt acttagtgaa 1140
atgaagtagc acatagcgcc agcacttagt gaaatgaagt agcatatagt gccagcactt 1200
agtgaaagct tctgatcaag gtcctgaaat ttcctcttgg atttttgtta attatgctga 1260
atttcccatt atttttagt gtagtcatta actcacagtg tccttgtgtg ttctaaggta 1320
ttgatgagtt ataatcatga aggactatgt ttctaaaaca ctatgtcatt ttcttttctt 1380
caagtgctgg atgtaaagaa taaaaataaa cattaagata aaaaaaaaaa aaa 1433

<210> 3
<211> 1382
<212> mRNA
<213> mouse
<400> 3
ctactcctcg gtatctccgc ctatcgtgcc tcttgcgtgc tctgaagatg gcggcagctg 60
cgggaaggtt gctctggtcc tcggttgctc gtcatgcaag tgctatttcc cggagtattt 120
ctgcctcaac agttcttagg cctgttgctt ctagaagaac ctgtttgaca gacatactgt 180
ggtctgcctc tgcccaagga aagtcagcct ttagcaccag ttcctctttc cacacccctg 240
ctgtcaccca gcacgcgccc tattttaaag gtactgctgt tgtcaatgga gagttcaaag 300
agctgagtct cgacgacttt aagggaaaat acttggtgct tttcttctac cctttggatt 360
tcacatttgt gtgtcctaca gaaattgttg ctttcagtga caaagccaat gaatttcatg 420
atgtaaactg tgaagtagtt gcagtttcag tggattccca cttcagtcat cttgcctgga 480
tcaacacacc aagaaagaat ggtggtttgg gccacatgaa catcacactg ttgtcggata 540
taactaagca gatatcccga gactacggag tgctgttgga aagtgctggc attgcactca 600
gaggtctctt cattattgac cctaatggtg tcgtcaagca cctgagtgtc aacgaccttc 660
cggtgggccg cagtgtggaa gaaacactcc gtttggtaaa ggcgttccag tttgtagaga 720

cccatggaga agtctgccca gccaactgga caccagagtc ccctacgatc aagccaagtc 780
caacagcttc caaagagtac tttgagaagg tccatcagta ggccatccta tgtctgcaat 840
tacctgaagc ttttcaggcc aaaaaagagc cccagctgga atccttccaa tgccttgaag 900
attatttata gaatggcaaa acctcattat gtttgtgttt ataagtactg ctccacaggc 960
tttgtaattc taagacaggt tcaggctctc taaaggtggc tagctgcttc catagctgcc 1020
cttactaggg acttcttggt ggctaaccaa ttctccccga gtgctttgcc cccatttctt 1080
ggatcatgtc cttagagggt aagcattctt tcccttagcc tgccctgaac cttggtctac 1140
agtgaagtag cacatagtgc cagtacttgg tgaaatgaag tagcacatag caccagcact 1200
taatggaagc ttctgatcaa ggtcctaaaa tttcctcttg aatttttgtg aattatgctg 1260
aatttccctt ttttttttt taaacagtgt ccttgtgtgt tctgaggtat tgaagaggta 1320
taatcatgaa ggactatgtc taatccataa gtcattttct tcaagagctg gatatataga 1380
at 1382

<210> 4
<211> 256
<212> PRT
<213> Homo sapiens
<400> 4

Met Ala Ala Ala Val Gly Arg Leu Leu Arg Ala Ser Val Ala Arg His
5 10 15
Val Ser Ala Ile Pro Trp Gly Ile Ser Ala Thr Ala Ala Leu Arg Pro
20 25 30
Ala Ala Cys Gly Arg Thr Ser Leu Thr Asn Leu Leu Cys Ser Gly Ser
35 40 45
Ser Gln Ala Lys Leu Phe Ser Thr Ser Ser Ser Cys His Ala Pro Ala
50 55 60
Val Thr Gln His Ala Pro Tyr Phe Lys Gly Thr Ala Val Val Asn Gly
65 70 75 80
Glu Phe Lys Asp Leu Ser Leu Asp Asp Phe Lys Gly Lys Tyr Leu Val

85 90 95

Leu Phe Phe Tyr Pro Leu Asp Phe Thr Phe Val Cys Pro Thr Glu Ile

100 105 110

Val Ala Phe Ser Asp Lys Ala Asn Glu Phe His Asp Val Asn Cys Glu

115 120 125

Val Val Ala Val Ser Val Asp Ser His Phe Ser His Leu Ala Trp Ile

130 135 140

Asn Thr Pro Arg Lys Asn Gly Gly Leu Gly His Met Asn Ile Ala Leu

145 150 155 160

Leu Ser Asp Leu Thr Lys Gln Ile Ser Arg Asp Tyr Gly Val Leu Leu

165 170 175

Glu Gly Ser Gly Leu Ala Leu Arg Gly Leu Phe Ile Ile Asp Pro Asn

180 185 190

Gly Val Ile Lys His Leu Ser Val Asn Asp Leu Pro Val Gly Arg Ser

195 200 205

Val Glu Glu Thr Leu Arg Leu Val Lys Ala Phe Gln Tyr Val Glu Thr

210 215 220

His Gly Glu Val Cys Pro Ala Asn Trp Thr Pro Asp Ser Pro Thr Ile

225 230 235 240

Lys Pro Ser Pro Ala Ala Ser Lys Glu Tyr Phe Gln Lys Val Asn Gln

245 250 255

<210> 5

<211> 257

<212> PRT

<213> Rattus norvegicus

<400> 5

Met Ala Ala Ala Ala Gly Arg Leu Leu Trp Ser Ser Val Ala Arg Pro

5 10 15

Ala Ser Thr Ile Phe Arg Ser Ile Ser Ala Ser Thr Val Leu Arg Pro
20 25 30
Val Ala Ser Arg Arg Thr Cys Leu Thr Asp Met Leu Trp Ser Ala Cys
35 40 45
Pro Gln Ala Lys Phe Ala Phe Ser Thr Ser Ser Ser Phe His Thr Pro
50 55 60
Ala Val Thr Gln His Ala Pro His Phe Lys Gly Thr Ala Val Val Asn
65 70 75 80
Gly Glu Phe Lys Glu Leu Ser Leu Asp Asp Phe Lys Gly Lys Tyr Leu
85 90 95
Val Leu Phe Phe Tyr Pro Leu Asp Phe Thr Phe Val Cys Pro Thr Glu
100 105 110
Ile Val Ala Phe Ser Asp Lys Ala Asn Glu Phe His Asp Val Asn Cys
115 120 125
Glu Val Val Ala Val Ser Val Asp Ser His Phe Ser His Leu Ala Trp
130 135 140
Ile Asn Thr Pro Arg Lys Asn Gly Gly Leu Gly His Met Asn Ile Thr
145 150 155 160
Leu Leu Ser Asp Leu Thr Lys Gln Ile Ser Arg Asp Tyr Gly Val Leu
165 170 175
Leu Glu Ser Ala Gly Ile Ala Leu Arg Gly Leu Phe Ile Ile Asp Pro
180 185 190
Asn Gly Val Ile Lys His Leu Ser Val Asn Asp Leu Pro Val Gly Arg
195 200 205
Ser Val Glu Glu Pro Leu Arg Leu Val Lys Ala Phe Gln Phe Val Glu
210 215 220
Thr His Gly Glu Val Cys Pro Pro Asn Trp Thr Pro Glu Ser Pro Thr
225 230 235 240
Ile Lys Pro Ser Pro Thr Ala Ser Lys Glu Tyr Phe Glu Lys Val His

245 250 255

Gln

<210> 6

<211> 257

<212> PRT

<213> mouse

<400> 6

Met Ala Ala Ala Ala Gly Arg Leu Leu Trp Ser Ser Val Ala Arg His
5 10 15

Ala Ser Ala Ile Ser Arg Ser Ile Ser Ala Ser Thr Val Leu Arg Pro
20 25 30

Val Ala Ser Arg Arg Thr Cys Leu Thr Asp Ile Leu Trp Ser Ala Ser
35 40 45

Ala Gln Gly Lys Ser Ala Phe Ser Thr Ser Ser Ser Phe His Thr Pro
50 55 60

Ala Val Thr Gln His Ala Pro Tyr Phe Lys Gly Thr Ala Val Val Asn
65 70 75 80

Gly Glu Phe Lys Glu Leu Ser Leu Asp Asp Phe Lys Gly Lys Tyr Leu
85 90 95

Val Leu Phe Phe Tyr Pro Leu Asp Phe Thr Phe Val Cys Pro Thr Glu
100 105 110

Ile Val Ala Phe Ser Asp Lys Ala Asn Glu Phe His Asp Val Asn Cys
115 120 125

Glu Val Val Ala Val Ser Val Asp Ser His Phe Ser His Leu Ala Trp
130 135 140

Ile Asn Thr Pro Arg Lys Asn Gly Gly Leu Gly His Met Asn Ile Thr
145 150 155 160

Leu Leu Ser Asp Ile Thr Lys Gln Ile Ser Arg Asp Tyr Gly Val Leu

165 170 175

Leu Glu Ser Ala Gly Ile Ala Leu Arg Gly Leu Phe Ile Ile Asp Pro

180 185 190

Asn Gly Val Val Lys His Leu Ser Val Asn Asp Leu Pro Val Gly Arg

195 200 205

Ser Val Glu Glu Thr Leu Arg Leu Val Lys Ala Phe Gln Phe Val Glu

210 215 220

Thr His Gly Glu Val Cys Pro Ala Asn Trp Thr Pro Glu Ser Pro Thr

225 230 235 240

Ile Lys Pro Ser Pro Thr Ala Ser Lys Glu Tyr Phe Glu Lys Val His

245 250 255

Gln

<210> 7

<211> 21

<212> DNA

<213> Artificial Sequence

<400> 7

tgcagtttca gtggattccc a

<210> 8

<211> 18

<212> DNA

<213> Artificial Sequence

<400> 8

ttcatgtggc ccaaacca

<210> 9

<211> 28

<212> DNA

<213> Artificial Sequence

<400> 9

tcttgcctgg atcaacacac caagaaag

<210> 10

<211> 22

<212> DNA

<213> Artificial Sequence

<400> 10

ccctctgctt gctgatgtga ct

<210> 11

<211> 20

<212> DNA

<213> Artificial Sequence

<400> 11

cctgtaagcg atgccctcat

<210> 12

<211> 29

<212> DNA

<213> Artificial Sequence

<400> 12

agcttgtccc agaattacgg cgtgttgaa

<210> 13

<211> 19

<212> DNA

<213> Artificial Sequence

<400> 13

gcggatgaag agaggcatg

<210> 14

<211> 18

<212> DNA

<213> Artificial Sequence

<400> 14

gccacaccgt cctttcca

<210> 15

<211> 23

<212> DNA

<213> Artificial Sequence

<400> 15

tggagacctg ggcaatgtgg ctg

<210> 16

<211> 17

<212> DNA

<213> Artificial Sequence

<400> 16

acgggtgctc agcctcc

<210> 17

<211> 18

<212> DNA

<213> Artificial Sequence

<400> 17

aggcttgtgc cctgcttc

<210> 18

<211> 25

<212> DNA

<213> Artificial Sequence

<400> 18

cagcctgcac tgaggagatc cctca

<210> 19

<211> 28

<212> DNA

<213> Artificial Sequence

<400> 19

aaccgcggtc gtggctcttg cgttctct

<210> 20

<211> 30

<212> DNA

<213> Artificial Sequence

<400> 20

gcgctagctt attgatggac cttctcaaag

<210> 21

<211> 20

<212> DNA

<213> Artificial Sequence

<400> 21

ttacagattg ccgcctgctc

<210> 22
<211> 20
<212> DNA
<213> Artificial Sequence
<400> 22
ccagcagtgg aataaggcct

<210> 23
<211> 25
<212> DNA
<213> Artificial Sequence
<400> 23
aatcacgacc cactgcaagg aacca

<210> 24
<211> 19
<212> DNA
<213> Artificial Sequence
<400> 24
tgcaccacca actgcttag

<210> 25
<211> 19
<212> DNA
<213> Artificial Sequence
<400> 25
ggatgcaggg atgatgttc

<210> 26

<211> 23

<212> DNA

<213> Artificial Sequence

<400> 26

cagaagactg tggatggccc ctc

<210> 27

<211> 877

<212> mRNA

<213> Rattus norvegicus

<400> 27

gaattcggca cgagggtcgt ccgcgtgtcc ggctcttgcc cacgcagtca tggcctccgg 60

caacgcgcac atcggaaagc ctgcccctga cttcacgggc accgccgtgg tggatggtgc 120

ctttaaggaa atcaagcttt cagactacag agggaagtac gtggtcctct ttttctatcc 180

actggacttc acttttgttt gccccacgga gatcatcgct tttagcgacc acgctgagga 240

cttccgaaag ctaggctgcg aggtgctggg agtgtctgtg gactctcagt tcacccacct 300

ggcctggatc aataccccac ggaaggaggg aggcttgggc ccactgaata tccctctgct 360

tgctgatgtg actaaaagct tgtcccagaa ttacggcgtg ttgaaaaatg atgagggcat 420

cgcttacagg ggcctcttta tcatcgatgc caagggtgtc cttcgccaga tcacagtcaa 480

cgacctacct gtgggacgct ctgtagatga ggctctccgc ctcgtccagg cctttcagta 540

tacagatgag catggggaag tctgtcctgc tggctggaag cccggcagtg acaccatcaa 600

acccaatgtg gatgacagca aggaatactt ctccaaacac aactgagatg ggtaaacatc 660

ggtgagcctg aatcccggat ctcacctgcg cccttacctg gatgtcctgt gctggcccag 720

aaaacgctag atcttcctct acattctaaa ggggctggag gctaggccga ggctttctca 780

ttacccacct ggaatctggt gaatagtgac cctgccctga gcacacccag ctgggcccag 840

gtctatagga aaccaataaa gtattaggga cagtgta 877

<210> 28

<211> 198

<212> PRT

<213> Rattus norvegicus

<400> 28

Met Ala Ser Gly Asn Ala His Ile Gly Lys Pro Ala Pro Asp Phe Thr
5 10 15

Gly Thr Ala Val Val Asp Gly Ala Phe Lys Glu Ile Lys Leu Ser Asp
20 25 30

Tyr Arg Gly Lys Tyr Val Val Leu Phe Phe Tyr Pro Leu Asp Phe Thr
35 40 45

Phe Val Cys Pro Thr Glu Ile Ile Ala Phe Ser Asp His Ala Glu Asp
50 55 60

Phe Arg Lys Leu Gly Cys Glu Val Leu Gly Val Ser Val Asp Ser Gln
65 70 75 80

Phe Thr His Leu Ala Trp Ile Asn Thr Pro Arg Lys Glu Gly Gly Leu
85 90 95

Gly Pro Leu Asn Ile Pro Leu Leu Ala Asp Val Thr Lys Ser Leu Ser
100 105 110

Gln Asn Tyr Gly Val Leu Lys Asn Asp Glu Gly Ile Ala Tyr Arg Gly
115 120 125

Leu Phe Ile Ile Asp Ala Lys Gly Val Leu Arg Gln Ile Thr Val Asn
130 135 140

Asp Leu Pro Val Gly Arg Ser Val Asp Glu Ala Leu Arg Leu Val Gln
145 150 155 160

Ala Phe Gln Tyr Thr Asp Glu His Gly Glu Val Cys Pro Ala Gly Trp
165 170 175

Lys Pro Gly Ser Asp Thr Ile Lys Pro Asn Val Asp Asp Ser Lys Glu
180 185 190

Tyr Phe Ser Lys His Asn
195

<210> 29
<211> 560
<212> mRNA
<213> Homo sapiens
<400> 29
atggcgacga aggccgtgtg cgtgctgaag ggcgacggcc cagtgcaggg catcatcaat 60
ttcgagcaga aggaaagtaa tggaccagtg aaggtgtggg gaagcattaa aggactgact 120
gaaggcctgc atggattcca tgttcatgag tttggagata atacggcagg ctgtaccagt 180
gcaggtcctc actttaatcc tctatccaga aaacacggtg ggccaaagga tgaagagagg 240
catgttggag acttgggcaa tgtgactgct gacaaagatg gtgtggccga tgtgtctatt 300
gaagattctg tgatctcact ctcaggagac cattgcatca ttggccgcac actggtggtc 360
catgaaaaag cagatgactt gggcaaaggt ggaaatgaag aaagtacaaa gacaggaaac 420
gctggaagtc gtttggcttg tggtgtaatt gggatcgccc aataaacatt cccttggatg 480
tagtctgagg ccccttaact catctgttat cctgctagct gtagaaatgt atcctgataa 540
acattaaaca ctgtaatctt 560

<210> 30
<211> 154
<212> PRT
<213> Homo sapiens
<400> 30
Met Ala Thr Lys Ala Val Cys Val Leu Lys Gly Asp Gly Pro Val Gln
5 10 15
Gly Ile Ile Asn Phe Glu Gln Lys Glu Ser Asn Gly Pro Val Lys Val
20 25 30
Trp Gly Ser Ile Lys Gly Leu Thr Glu Gly Leu His Gly Phe His Val

```
          35                  40                  45
His Glu Phe Gly Asp Asn Thr Ala Gly Cys Thr Ser Ala Gly Pro His
     50                  55                  60
Phe Asn Pro Leu Ser Arg Lys His Gly Gly Pro Lys Asp Glu Glu Arg
 65                  70                  75                  80
His Val Gly Asp Leu Gly Asn Val Thr Ala Asp Lys Asp Gly Val Ala
                 85                  90                  95
Asp Val Ser Ile Glu Asp Ser Val Ile Ser Leu Ser Gly Asp His Cys
            100                 105                 110
Ile Ile Gly Arg Thr Leu Val Val His Glu Lys Ala Asp Asp Leu Gly
        115                 120                 125
Lys Gly Gly Asn Glu Glu Ser Thr Lys Thr Gly Asn Ala Gly Ser Arg
    130                 135                 140
Leu Ala Cys Gly Val Ile Gly Ile Ala Gln
145                 150
```